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**First report of rust caused by *Pucciniastrum circaeae* on *Fuchsia x Hybrida* in Italy.**

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1 **First Report of Rust Caused by *Pucciniastrum circaeae* on *Fuchsia x hybrida* in Italy.** A.

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4 Italy.

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6 *Fuchsia* is a genus of flowering plants native to South America and New Zealand, belonging to  
7 the family Onagraceae. In September 2011, potted plants of *Fuchsia x hybrida* two-year-old in a  
8 garden located near Biella (northern Italy) showed signs and symptoms of a previously unknown  
9 disease. Typically, infected plants showed leaf chlorosis followed by the appearance of necrosis  
10 on the adaxial leaf surfaces, while the abaxial surfaces showed orange uredosores irregularly  
11 distributed. As the disease progressed, infected leaves turned yellow and wilted. Affected plants  
12 showed a progressive phylloptosis and also flowering was negatively affected. Uredospores from  
13 affected tissues were globose, yellow-to orange, measuring 14.55 to 25.89 (average 19.6)  $\mu\text{m}$ .  
14 The morphological characteristics of the fungus corresponded to those of the genus  
15 *Pucciniastrum*. DNA was extracted using Terra PCR Direct Polymerase Mix (Clonte, CH) and  
16 PCR carried out using ITS 1/ ITS 4 primer (4). A 318 base pair PCR product was sequenced and  
17 a BLASTn search (1) confirmed that the sequence corresponded to *Pucciniastrum circaeae*. The  
18 nucleotide sequence has been assigned the GenBank Accession number JQ029688.

19 Pathogenicity tests were performed by spraying leaves of healthy one-year-old potted *Fuchsia x*  
20 *hybrida* plants with an aqueous  $1 \times 10^3$  uredospores/ml suspension. The inoculum was obtained  
21 from infected leaves. Plants sprayed only with water served as controls. Three plants were used  
22 for each treatment. Plants were covered with plastic bags for 4 days after inoculation and  
23 maintained in the open at temperatures ranging between 18 and 25 °C. Lesions developed on

1 leaves 20 days after inoculation with the uredospore suspension, whereas control plants remained  
2 healthy. The pathogenicity test was carried out twice. The presence of *Pucciniastrum fuchsiae*,  
3 later identified as *P. epilobii* was repeatedly reported in US (3). Recently, this species was  
4 reported to form a single group with *P. circaeae* (3). This is, to our knowledge, the first report of  
5 *P. circaeae* on *Fuchsia x hybrida* in Italy.

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7 *References:* (1) S.F. Altschul *et al.* Nucleic Acids Res., 25:3389, 1997 (2) L.B. Loring, L.F. Roth  
8 Plant Disease Reporter, 48:99, 1964. (3) Y.M. Liang *et al.* Mycoscience 47: 137, 2006. (4) T.  
9 J. White *et al.* In: PCR Protocols: A Guide to Methods and Applications ( M. A. Innis *et al.*, eds.)  
10 Academic Press, San Diego, 1990.